

4. Environmental Consequences

4.1 Introduction

This chapter discusses the direct, indirect and cumulative environmental consequences of the alternatives. Environmental consequences are the effects or impacts on the physical, biological and socio-economic resources that may be caused by the implementation of the alternative. The relative significance of the effect or impact is measured by a comparison of the context, duration and intensity of the effect of the alternative and the current activities occurring at Rosillo Peak and in BIBE.

The effectiveness and viability of the proposed repeater installation would be re-evaluated five years after implementation, (hereafter referred to as the five-year evaluation), if approved, because it is possible that technological improvements in communications could render the installation obsolete or the installation could fail to meet the project objectives. At that time, a cost-benefit analysis would be conducted for the repeater to determine if the repeater is achieving the project objectives. Upon completion of this analysis, the repeater would either remain or be removed and the site restored. Based on the temporary nature of the proposed installation, the environmental consequences for the affected resources could be eliminated and the site could be restored if the NPS decided that the proposed repeater no longer met the project objectives or the environmental consequences outweighed the benefit of the repeater.

NHPA Section 106 consultation is being completed separate from this EA due to the sensitive nature of information associated with cultural resources.

4.2 Methodology

The impact and conclusions in this document are based on the review of information provided by park staff, review of existing literature, coordination with regulatory agencies, field reconnaissance of the project area and the professional judgments of NPS staff and the preparers of this EA. The environmental consequences are evaluated within the context of the proposed site, which is Rosillo Peak and the immediately adjacent area, as well as within the context of BIBE, with its associated resources. The evaluation of impacts within the context of BIBE is based on trends and expected effects. The following definitions apply to all resource impact categories.

Beneficial effect is a beneficial change in the condition or appearance of the resource or a change that moves the resource toward a desired condition.

Adverse effect is a change that moves the resource away from a desired condition or detracts from its appearance or condition.

Direct effect is defined as an effect that occurs at the same time and place as the action. For example, a direct impact resulting from installation activities would be the disturbance and compaction of soil at the platform site.

Indirect effect is defined as an effect that is spatially removed from the action or occurs later in time but is considered likely in the foreseeable future. For example, an indirect effect of the proposed action would be the disturbance and compaction of soil from foot traffic during quarterly maintenance trips.

Short-term effect is defined as an effect that occurs during the implementation of the alternative (i.e. the installation of the radio repeater on the peak)

Long-term effect is defined as an effect that extends beyond the implementation of the alternative (i.e. the subsequent maintenance activities and presence of the equipment on the peak)

Cumulative Effects Analysis

The Council on Environmental Quality (CEQ) regulations, which implement the National Environmental Policy Act of 1969 (42 USC 4321 *et seq.*), require assessment of cumulative impacts in the decision-making process for federal projects. Cumulative impacts are defined as "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts are considered for both the no-action and preferred alternatives.

Cumulative effects are defined as effects that are the incremental impacts of direct and indirect effects of an action added to the past, present or reasonably foreseeable future actions associated with the activity in the project area and in the surrounding region. Cumulative effects can result from individually minor but collectively significant actions over a period of time.

Cumulative effects in this analysis result from the following actions:

No past or present actions currently impact Rosillo Peak. The impact of the placement of the radio repeater on Rosillo Peak would have reasonably foreseeable impacts on the physical, biological and social resources of the peak. In BIBE, communications in the northern portion of the park are limited due to radio shadow, or "blind spots." The proposed installation would reduce these "blind spots" and enhance communications for multiple agencies that operate on the border. Based on the radio coverage achieved by Rosillo Peak, the need for additional radio repeaters on other mountain peaks is not anticipated. No other reasonably foreseeable actions, direct or indirect, are expected to affect Rosillo Peak.

The no action alternative would not add future foreseeable impacts to Rosillo Peak. However, in BIBE, current communications limitations would continue. The future reasonably foreseeable impacts to BIBE would include inhibited interagency coordination and the continued upward trend in illegal activities. In addition, the no action alternative would likely result in placement of a radio repeater on a different mountain peak in BIBE or in the region surrounding BIBE. The NPS would likely not receive the communications benefit from a radio repeater on a mountain peak in the region around BIBE.

Thresholds of Change

Because definitions of intensity (negligible, minor, moderate, or major) vary by impact topic, intensity definitions are provided separately for each impact topic analyzed in this environmental assessment. A threshold of change describes the effect of an action on a resource and is defined by the duration and intensity of the activity.

Impairment of Park Resources and Values

In addition to evaluating the environmental consequences of the alternatives, NPS Management Policies require analysis of potential effects to determine if alternatives, if implemented, would impair park resources and values.

The fundamental purpose of the national park system, as established by the Organic Act and the General Authorities Act, is to conserve park resources and values for the enjoyment of future generations. National Park Service managers must always seek ways to avoid or minimize, to the degree practicable, adverse impacts on park resources and values. However, the laws give

the NPS discretion to allow impacts to park resources when necessary and appropriate, as long as the impact does not constitute an impairment of the affected resources and values. The prohibited impairment is an impact that, in the professional opinion of the responsible NPS manager, would harm the integrity of the resource or values. An impact to any park resource or values may constitute impairment, but would be more likely to be considered impairment to the extent that it affects a resource or value whose conservation is:

- Necessary to fulfill specific purposes identified in the establishing legislation or proclamation of the park;
- Key to the natural or cultural integrity of the park or for enjoyment of the park;
- Identified as a goal in the park's general management plan or other relevant NPS planning documents.

Impairment may result from NPS activities in managing the park, visitor activities, or activities from concessionaires, contractors and others operating in the park. *The likelihood of impairment was concluded in this EA for adverse effects that were determined to have a major adverse effect.*

The following summary of an NPS report provides the basis for the type of effects that are expected from illegal border activities and the actions that are recommended to deter these activities.

"Resource Issues in Southern U.S. Border Parks from Drug Trafficking and Undocumented Alien Activity", April 2003 (See Appendix D)

This NPS report summarizes information provided by 11 border parks in Arizona and Texas. Of these 11 parks, 9 reported that damage is occurring as a result of illegal border activity. Some damage is obvious, such as the destruction of historic structures, vegetation clearing and trampling, new roads and trails, historic resources burned and trash left behind. Other impacts are subtle, such as exclusion of wildlife from water sources, contamination of water sources due to improper sanitation, disturbance to threatened and endangered species and illegal collection of artifacts (herein collectively referred to as IDT/UDA impacts).

Cultural resources, once impacted, cannot be restored to their original integrity. Although natural resources have the ability to regenerate, desert environments are very slow to heal.

This April 2003 NPS document reported that the direct and continuous sharing of information between interagency law enforcement and resource staff is essential to any monitoring and investigation efforts. In addition, it is also essential to know what resources are present in order to effectively monitor and/or restore resources that may be affected by illegal activities. The immediate inclusion of resource specialists in law enforcement could ensure proper identification of sensitive resources before the site is altered by additional law enforcement activities.

Conclusion: Law enforcement agencies and resource specialists protect human health and safety and the integrity of natural and cultural resources. Coordination between various law enforcement agencies and resource specialists (herein referred to as Interagency Coordination) is essential to protect the health and safety of visitors and park employees as well as the protection of the natural and cultural resources of the park. In addition to the issues addressed in the NPS report, BIBE has documented a rising trend in illegal border activities in the park (See reported trends in Appendix D and Photographs 19-22 in Appendix F). Effective Interagency Coordination is essential to deter IDT/UDA activities and reduce IDT/UDA impacts to park resources. *This conclusion was used to analyze the effect of the alternatives on affected resources within the context of BIBE and its associated resources.*

Based on the larger area affected (BIBE vs. Rosillo Peak) and the inability of the NPS to mitigate the effects of IDT/UDA activities, the intensity of the effects of the alternative, within the context of BIBE, will be given greater weight than the effects of the alternative on the resources at Rosillo Peak, where the size and type of impacts of the proposed action are known and can be mitigated.

4.3 Physical Resources

4.3.1 Soil Resources

For the purposes of this analysis, intensity of impact, or threshold of change, to soil resources were defined as follows:

Negligible - Soils would not be affected or the effects to soils would be below or at the lower levels of detection. Any effects to soil productivity or fertility would be slight and no long-term effects to soils would occur.

Minor - The effects to soils would be detectable. Effects to soil productivity or fertility would be small, as would the area affected (< 10 acres). If mitigation were needed to offset adverse effects, it would be relatively simple to implement and would likely be successful.

Moderate - The effect on soil productivity or fertility would be readily apparent, likely long-term, and result in a change to the soil character over a relatively wide area (11 to 100 acres). Mitigation measures would probably be necessary to offset adverse effects and would likely be successful.

Major - The effect on soil productivity or fertility would be readily apparent, long-term, and substantially change the character of the soils over a large area (> 100 acres). Mitigation measures to offset adverse effects would be needed, extensive, and their success could not be guaranteed.

Effect of the Preferred Alternative

Direct/Indirect Impacts: The direct effects of the proposed action on the soil resources at the site include soil compaction and disturbance of the desert soil pavement due to rotor wash and foot traffic. Rotor wash at the landing site is capable of lifting soil aggregates up to 3 mm in size. Lajitas-Rock outcrop soils are described as having only a slight erosion hazard due to the gravel and cobbles. According to the NRCS Soil Survey descriptions, the soils series found in the Rosillos Mountains is typically thin (<seven inches), weak and friable. However, this soil type has not been confirmed on-site. It is the professional judgment of the NPS Physical Scientist that the disturbance of the desert pavement will affect the soils on Rosillo Peak. Once the desert soil pavement is disturbed by the skids of the helicopter and the footsteps of personnel, the exposed soil will be susceptible to not only rotor wash but also the everyday winds.

The installation of the repeater equipment and the helicopter landing would result in minor compaction of the soil. Soil compaction reduces water infiltration into the soil, increases runoff and reduces revegetation. The landing site and the platform site are approximately 330 feet apart; therefore, foot traffic would impact the soil between the two sites. These impacts are expected to be long term.

Cumulative Impacts: The soil resources at the proposed site have been, up to the present, relatively undisturbed. The proposed action would involve quarterly maintenance trips to the site by helicopter. The periodic minor disturbance to the physical pavement of the desert soil would increase erosion of the soil. The cumulative effect of foot traffic and helicopter landing would continue to impact the site over the life of the installation and would lead to difficulties in re-establishing vegetation at the site.

In BIBE, the proposed action would improve law enforcement agencies' deterrence of IDT/UDA activities and reduce IDT/UDA impacts (i.e. unauthorized trails and roads) on soil resources in multiple locations within BIBE.

Conclusion: According to NPS staff, it is likely that the recurring minor soil disturbance at the proposed site would result in the loss of up to two inches of soil at the landing site within the first five years, affecting the soil productivity over the long-term. Also, a cumulative effect of soil disturbance and erosion would make it more difficult to restore vegetation at the proposed site.

In order to ensure the preservation of soil resources on the Peak, a soil tackifier would be added to the helicopter landing site, the proposed platform site, and the corridor between the sites. The NPS would monitor soil erosion and use a soil tackifier to stabilize the soil in the high disturbance areas. Soil tackifiers are commonly organic products made from wood fibers, other plant material or polyacrylimide (PAM-long chain synthetic molecules). PAM stabilizers are known to effectively protect soils from erosion and facilitate vegetation establishment (Green and Stott, 2001).

Based on the mitigation measures and the area of impact of the proposed installation, the proposed action would have an overall minor, adverse effect to the soils on Rosillo Peak. In the context of BIBE, an indirect, moderate, beneficial effect of the proposed action is expected due to enhancement of Interagency Coordination and the resulting reduction in IDT/UDA impacts (i.e. unauthorized trails and roads) to desert soil in BIBE. This alternative would not likely result in impairment of resources and values of BIBE.

Effect of the No Action Alternative

Direct/Indirect Impacts: The peak receives relatively few visitors; therefore it is currently undisturbed by regular foot traffic. Aircraft do not regularly impact the peak. No other direct or indirect impacts would be associated with this alternative.

Cumulative Impacts: No cumulative impacts to the resources on Rosillo Peak would be associated with this alternative. However, if the proposed action is not implemented, a new location for the repeater would be evaluated. If the proposed repeater were placed on another peak in BIBE or the surrounding area, the soil impacts would be similar to the impacts of the preferred alternative. Also, in BIBE, IDT/UDA activities and impacts (i.e. unauthorized trails and roads) would continue on their upward trend. Interagency Coordination would be inhibited by the limited communications capabilities.

Conclusion: The current natural soil conditions and processes on Rosillo Peak would continue to occur. In BIBE, the upward trend in IDT/UDA activities would continue to negatively impact the soil resources at multiple locations in BIBE.

The no action alternative would have no adverse impacts to the soil resources at Rosillo Peak. The continuing, upward trend of illegal activities would result in a moderate, adverse effect on soil resources of BIBE. The no action alternative would not likely lead to an impairment of park resources and values.

4.3.2 Visual Resources

For the purposes of this analysis, intensity of impact, or threshold of change, to visual resources were defined as follows:

Negligible - the impact is barely detectable, and/or will affect few visitors.

Minor - the impact is slight but detectable, and/or will affect some visitors

Moderate - the impact is readily apparent and/or will affect many visitors.

Major - the impact is severely adverse or exceptionally beneficial and/or will affect the majority of visitors.

Effect of the Preferred Alternative

Direct/Indirect Impacts: The proposed action includes the installation of communications equipment where no previous intrusion has occurred. Two 20-foot antennas would be mounted on the installation. A line-of-sight analysis was conducted by the NPS GIS Specialist. That analysis indicated that a Line-of-Sight from the ground level to the top of Rosillo Peak has clear visibility to the majority of a 10-mile section of Routes 12 and 13, and approximately 10 miles of Route 11, north from Panther Junction. The installation would be visible from a number of locations on the north side of the Chisos Mountains, if viewed through high-powered binoculars.

The NPS calculated that sunlight reflecting from a surface that faces due south, set at a 45 degree angle, would cast a reflection 6 ½ degrees above the horizon to the south. Rosillo Peak is 5,445 feet above mean sea level, so an observer south of Rosillo Peak, on the north slope of the Chisos Mountains would have to be 11,500 feet above the elevation of Rosillo Peak to see the reflection from the solar panels. The highest point in BIBE is Emory Peak, at 7,825 feet above sea level. The solar panels at Rosillo Peak would be mounted at a flatter angle to horizontal, which means the reflected light would point even higher in the sky than in the 45 degree scenario. Thus, reflected light from the solar panels would not impact visibility resources.

The presence of the installation is an obvious disturbance to the visual resources of the peak. In addition, roads and development to the south and northwest can be seen from the peak.

Cumulative Impacts: No visual obstructions have been located on the peak in the past. No additional equipment, fencing or other obstructions would be added to the installation in the reasonably foreseeable future. No cumulative impacts to visual resources are associated with this alternative. In addition, the proposed installation would be re-evaluated five years after the implementation and could be removed at that time.

Conclusion: Based on NPS calculations, the reflection from solar panels would have no adverse effect on the visibility resources of the peak. The direct, long-term impact of the proposed action on visual resources is its visibility from the surrounding desert and its obstruction of visibility from the peak. However, other man-made structures (i.e. roads and buildings) are visible from Rosillo Peak.

The antennas and other equipment would be painted to blend with the surrounding environment to mitigate its affect on visibility from the surrounding desert.

Although the impact of the installation on visibility from the peak is severely adverse (major), it only affects some visitors (minor), due to low visitation of the peak. Therefore, the proposed installation would have a moderate, long-term, adverse impact on the visibility resources of the summit of Rosillo Peak. In the context of BIBE, the proposed installation occupies a very small area, is only visible in certain locations, and would be painted to reduce its visibility from the surrounding desert; therefore, the overall effect of this alternative on the visual resources in BIBE is minor. This alternative is not likely to impair park resources or values.

Effect of the No Action Alternative

Direct/Indirect Impacts: No man-made visual obstructions currently exist on the peak. No direct or indirect adverse impacts would be associated with the no action alternative.

Cumulative Impacts: If the proposed action is not implemented, a new location for the repeater would be evaluated. If the proposed repeater were placed on another peak in BIBE or the surrounding area, the visual impacts would be similar to the impacts of the preferred alternative.

Conclusion: *This alternative would have no adverse impacts on the visual resources of the peak. This alternative would likely have no adverse impact or a minor adverse impact on the visual resources of BIBE, if a new location for the repeater were found. This alternative would likely not impair park resources and values.*

4.3.3 Archeological Resources

For the purposes of this analysis, intensity of impact, or threshold of change, to archeological resources were defined as follows:

Negligible - Impact is at the lowest levels of detection with neither adverse nor beneficial consequences. The determination of effect for §106 would be *no adverse effect*.

Minor - Adverse: disturbance of a site(s) results in little, if any, loss of integrity. The determination of effect for §106 would be *no adverse effect*. Beneficial: maintenance and preservation of a site(s). The determination of effect for §106 would be *no adverse effect*.

Moderate - Adverse: disturbance of a site(s) results in loss of integrity. The determination of effect for §106 would be *adverse effect*. A memorandum of agreement is executed among the National Park Service and applicable state or tribal historic preservation officer and, if necessary, the Advisory Council on Historic Preservation in accordance with 36 CFR 800.6(b). Measures identified in the MOA to minimize or mitigate adverse impacts reduce the intensity of impact under NEPA from moderate to minor. Beneficial: stabilization of a site(s). The determination of effect for §106 would be *no adverse effect*.

Major - Adverse: disturbance of a site(s) results in loss of integrity. The determination of effect for §106 would be *adverse effect*. Measures to minimize or mitigate adverse impacts cannot be agreed upon and the National Park Service and applicable state or tribal historic preservation officer and/or Advisory Council are unable to negotiate and execute a memorandum of agreement in accordance with 36 CFR 800.6(b). Beneficial: active intervention to preserve a site(s). The determination of effect for §106 would be *no adverse effect*.

Effect of the Preferred Alternative

Direct/Indirect Impacts: In accordance with ARPA, to the extent possible, the precise location and nature of the affected SAL will not be disclosed in this EA. Although the helicopter landing site and platform site are located in an area where archeological materials and features are more thinly distributed, foot traffic and the transporting of heavy equipment around the peak during initial installation would have a direct, short-term, moderate impact to areas where archeological materials and features are more dense. Artifacts could be broken and/or compacted from foot traffic and the placement of heavy equipment. Also, the actual setup activities could result in disturbance and/or displacement of features and the breakage of artifacts.

The Comanche Nation requested that non-invasive methods be used to study and map the SAL. They also requested that they be able to review the map and archeological documentation prior to disturbance of the physical integrity of the archeological site. In addition, the Mescalero Apache Tribe requested that avoidance of Rosillo Peak be considered as a mitigation measure to protect the SAL and that the repeater be located at another site.

Cumulative Impacts: The site has not been disturbed by human activities in the past. The proposed installation would require quarterly maintenance trips to the proposed site. The direct

impacts from foot traffic described above would occur on a more frequent basis. The movement of heavy equipment is likely to occur only during the initial installation. However, replacement of heavy equipment parts and/or batteries could occur twice during the five-year life span of the repeater. No indirect, long-term effects are anticipated from heavy equipment movement around the Peak. The increased visitation to the site increases the possibility of illegal collection of archeological artifacts.

BIBE contains thousands of archeological sites and other cultural resources. Although not all of these sites are documented, the NPS must protect these sites. Enhanced communications would improve response times to reported resource damage and facilitate cooperation between resource managers and law enforcement. Improved cooperation would likely result in more efficient monitoring of areas sensitive to damage inflicted by IDT/UDA activities.

Conclusion: These direct, adverse impacts would result in long-term, cumulative impacts and constitute a moderate, adverse impact to the SAL at the Rosillo Peak site without mitigation measures. Therefore, appropriate mitigating measures are necessary to protect this cultural resource from the impacts of this alternative. The NPS initiated consultation with the THC in accordance with Section 106 of NHPA.

The NPS received verbal concurrence from the THC that this SAL is "clearly eligible" for the National Register of Historic Places. Verbal concurrence was obtained by the NPS Archeologist in a conversation with Mark Denton, THC National Register Program and with Debra Beene, THC Environmental Compliance Review on November 20, 2003. However, no written Determination of Eligibility agreement has been signed. To fulfill the requirements of Section 106 of the National Historic Preservation Act, archeological work must be performed by qualified archeologists prior to utilization of the proposed site. The Final Archeological Mitigation Scope of Work (March 2004) is the agreement between the NPS and the THC on appropriate mitigation measures should the park decide to proceed with the proposed project. These measures include detailed surface mapping, controlled collection of certain artifacts and their curation according to federal standards, and archeological test excavations to recover significant scientific data from archeological features on the site prior to use of the location for a repeater installation and helicopter landing site (Alex, 2004).

Based on the consultation and agreement between the NPS and THC according to Section 106 of NHPA, this alternative would have no adverse effect on the SAL on Rosillo Peak. However, under NEPA, the site would be disturbed by the proposed activities and would result in a minor adverse effect. In BIBE, the proposed action would have an overall minor, beneficial effect on the cultural resources of the park. Based on the beneficial effect of the proposed action on cultural resources of the park, the proposed action would likely not impair park resources and values.

Effect of the No Action Alternative

Direct/Indirect Impacts: The no action alternative would have no direct impact on the cultural resources of Rosillo Peak.

According to BIBE law enforcement, natural and cultural resource damage by undocumented alien activity and illegal border activities has been on an upward trend in BIBE over the past four years (See Appendix D).

Cumulative Impacts: No direct cumulative impacts would occur with this alternative. However, the preparation of this EA constitutes disclosure of the location of this SAL to the public and would likely increase visitation, and subsequent illegal collection of artifacts at the peak. The increased potential for illegal collection of artifacts would likely require monitoring of the site by the NPS. Also, IDT/UDA impacts to archeological and cultural resources of BIBE would continue

on an upward trend. In addition, if the proposed action is not implemented, a new location for the repeater would be evaluated.

Conclusion: The SAL that is located on the peak would remain undisturbed by proposed activities. However, due to the possibility of increased visitation to the peak, this alternative would result in minor adverse effects to the archeological resources of Rosillo Peak. In addition, IDT/UDA impacts in BIBE would continue on their upward trend.

The disclosure of the location of this SAL would have a long-term, minor adverse effect on the SAL by increasing visitation and the potential for illegal collection of artifacts, on Rosillo Peak. The effect of limited communications would have a long-term, minor, adverse impact on the cultural resources of BIBE. This alternative would likely not impair park resources and values.

4.3.4 Ethnographic Resources

For the purposes of this analysis, intensity of impact, or threshold of change, to ethnographic resources were defined as follows:

Negligible - Impact(s) would be barely perceptible and would neither alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of practices and beliefs. The determination of effect on Traditional Cultural Properties (ethnographic resources eligible to be listed in the National Register) for §106 would be *no adverse effect*.

Minor - Adverse: impact(s) would be slight but noticeable but would neither appreciably alter resource conditions, such as traditional access or site preservation, nor the relationship between the resource and the affiliated group's body of practices and beliefs. The determination of effect on Traditional Cultural Properties (ethnographic resources eligible to be listed in the National Register) for §106 would be *no adverse effect*. Beneficial: would allow access to and/or accommodate a group's traditional practices or beliefs. The determination of effect on Traditional Cultural Properties for §106 would be *no adverse effect*.

Moderate - Adverse: impact(s) would be apparent and would alter resource conditions. Something would interfere with traditional access, site preservation, or the relationship between the resource and the affiliated group's practices and beliefs, even though the group's practices and beliefs would survive. The determination of effect on Traditional Cultural Properties (ethnographic resources eligible to be listed in the National Register) for §106 would be *adverse effect*. Beneficial: would facilitate traditional access and/or accommodate a group's practices or beliefs. The determination of effect on Traditional Cultural Properties for §106 would be *no adverse effect*.

Major - Adverse: impact(s) would alter resource conditions. Something would block or greatly affect traditional access, site preservation, or the relationship between the resource and the affiliated group's body of practices and beliefs, to the extent that the survival of a group's practices and/or beliefs would be jeopardized. The determination of effect on Traditional Cultural Properties (ethnographic resources eligible to be listed in the National Register) for §106 would be *adverse effect*. Beneficial: would encourage traditional access and/or accommodate a group's practices or beliefs. The determination of effect on Traditional Cultural Properties for §106 would be *no adverse effect*.

Direct/Indirect Impacts: Mountaintop sites are traditionally sacred places to American Indians. In accordance with applicable federal laws and NPS Management Policy, formal consultation with various recognized American Indian tribes was conducted. These tribes included the Mescalero Apache Tribe (New Mexico), Ysleta Del Sur Pueblo tribe (El Paso, TX), Apache Tribe of

Oklahoma, Comanche Tribe of Oklahoma, Kickapoo Traditional Tribe of Texas, and the Kiowa Tribe of Oklahoma. The Mescalero Apache people would be directly impacted. The Apache people believe all mountain peaks to be sacred, and Rosillo Peak particularly important due to the presence of the SAL.

Cumulative Impacts: No additional installations on other mountain peaks are anticipated. The size of the proposed installation is not expected to increase. No cumulative impacts to ethnographic resources are expected for the proposed action.

Conclusion: The proposed installation would interfere with the relationship between this resource and the Mescalero Apache people's beliefs and practices and with preservation of the sanctity of the site. The Mescalero Apache people recognize that it is impossible to prevent development on all mountain peaks. The proposed installation would not jeopardize the survival of this group's beliefs or practices. However, they believe that the presence of the archeological site lends more ethnographic significance to this site. The Section 106 consultation between the NPS and tribal governments is being conducted separately from this EA and has not been completed as of the date of the Draft EA.

Based on the concerns expressed by the Mescalero Apache people, the proposed installation would have a moderate, direct adverse impact to the ethnographic qualities of the peak. The proposed action would have a negligible adverse impact on the ethnographic resources in BIBE. This alternative would not likely impair park resources or values.

Effect of the No Action Alternative

Direct/Indirect Impacts: The no action alternative would have no direct impact on the ethnographic quality of Rosillo Peak.

Cumulative Impacts: No direct cumulative impacts would occur with this alternative. However, if the proposed action is not implemented, a new location for the repeater would likely be evaluated. If the proposed repeater were placed on another peak in BIBE or the surrounding area, the impact to ethnographic resources would be similar, depending on the site, to the impacts of the preferred alternative.

Conclusion: ***The no action alternative would have no adverse effect on the ethnographic resources of Rosillo Peak. The no action alternative would likely have a moderate, adverse impact to the ethnographic resource of another peak in the BIBE region. This alternative would not likely impair park resources and values.***

4.3.5 Wilderness Resources

For the purposes of this analysis, intensity of impact, or threshold of change, to wilderness resources were defined as follows:

Negligible - A change in the wilderness character could occur, but it would be so small that it would not be of any measurable or perceptible consequence.

Minor - A change in the wilderness character and associated values would occur, but it would be small and, if measurable, would be highly localized.

Moderate - A change in the wilderness character and associated values would occur. It would be measurable, but localized.

Major - A noticeable change in the wilderness character and associated values would occur. It would be measurable, and would have a substantial or possibly permanent consequence.

Effect of the Preferred Alternative

Direct/Indirect Impacts: The Wilderness Act of 1964 defines a wilderness as "an area where the earth and its community of life are untrammelled by man, where man himself is a visitor and does not remain." It is further defined as "an area of undeveloped Federal land retaining its primeval character and influence, without permanent improvements or human habitation, which is protected and managed so as to preserve its natural conditions and which generally appears to have been affected primarily by the forces of nature, with the imprint of man's work substantially unnoticeable, has outstanding opportunities for solitude or a primitive and unconfined type of recreation and has at least five thousand acres of land or is sufficient in size as to make practicable its preservation and use in an unimpaired condition." The Wilderness Act, Section 4 (c), prohibits permanent and temporary roads, use of motor vehicles, landing of aircraft, and structures or installations "except as necessary to meet the minimum requirements for the administration of the area." The proposed action would place a man-made structure at Rosillo Peak, where no such intrusion has occurred before.

IDT/UDA impacts in BIBE have been on an upward trend over the past four years (See Appendix D). The northern half of the park, including its wilderness areas, currently has no reliable communication tool to administer the area. A minimum requirement analysis was conducted for the proposed installation (See Appendix E). The proposed installation would have a major, long-term beneficial impact on the wilderness resource by improving Interagency Coordination and NPS operations that administer the natural resources of the wilderness area.

Cumulative Impacts: The proposed site is not expected to expand beyond the proposed impact area in the reasonably foreseeable future. In addition, the installation is temporary in nature, and could be removed after its five-year evaluation.

The National Park Service will continue to undertake a Wilderness Study of all lands that have been determined to be suitable as a result of the wilderness suitability assessment. Wilderness studies will be supported by appropriate documentation of compliance with NEPA and NHPA. The Council on Environmental Quality requires environmental impact statements for wilderness studies that will result in recommendations for designations (i. e., proposals for legislation to designate as wilderness).

Conclusion: The Wilderness Act allows the proposed installation if it is "necessary to meet the minimum requirements for the administration of the area." A minimum requirements analysis determined that this installation would significantly improve the administration and protection of the wilderness resources of the park by improving communications capabilities of law enforcement agencies and NPS operations. The total area adversely impacted by the proposed installation is 0.24-acre, and the wilderness area in the northern portion of the park positively affected by the enhanced communications is approximately 60,000 acres. The proposed radio repeater platform and equipment are designed to minimize the impact of the installation so as not to unduly inhibit the reclamation of the site when the proposed installation is removed. In addition, according to NPS Reference Manual 41 and NPS professional judgment, since the proposed repeater installation has been determined to meet the minimum requirement for the administration of the suitable wilderness area, the installation would be allowed without an adverse effect to wilderness character.

The proposed installation would meet the minimum requirement for administration of the suitable wilderness area and therefore would be allowed in the area without adverse effect according to NPS RM 41. The proposed installation would have no adverse impact on the wilderness character at Rosillo Peak. In the context of BIBE, the proposed action would

have a moderate, beneficial effect on the wilderness resource by improving the NPS operations responsible for the continued study of the suitable wilderness area. This alternative would likely not impair the resources and values of BIBE.

Effect of the No Action Alternative

Direct/Indirect Impacts: The no action alternative would maintain current communications limitations in the northern portion of the park. This alternative would not require a facility within a wilderness area, thus would have no direct impact on wilderness issues.

Cumulative Impacts: No direct cumulative impacts at Rosillo Peak would occur with this alternative. However, limited communications would continue in the reasonably foreseeable future and would result in a continued upward trend in IDT/UDA impacts that would adversely affect the natural resources and wilderness character of the wilderness areas in BIBE. In addition, if the proposed action is not implemented, a new location for the repeater would likely be evaluated. If the proposed repeater were placed on another peak in BIBE or the surrounding area, the effect on suitable wilderness would be similar to the impacts of the preferred alternative.

Conclusion: Natural and cultural resource damage that occurs due to illegal activities on the border would continue to increase. NPS management policies state that the NPS must manage suitable wilderness areas so as not to diminish the wilderness suitability of an area possessing wilderness characteristics until the legislative process of wilderness designation has been completed. The current limited communication capability would be maintained with this alternative and would inhibit the ability of the NPS to effectively manage the suitable wilderness area in the northern portion of the park.

This alternative has no adverse effect on the wilderness resources of Rosillo Peak. The limitation of current communications has a minor, adverse impact on wilderness resources of BIBE. This alternative would not likely result in impairment of the wilderness resources and values in BIBE.

4.4 Biological Resources

For the purposes of this analysis, intensity of impact, or threshold of change, to vegetation resources were defined as follows:

Negligible - No native vegetation would be affected or some individual native plants could be affected as a result of the alternative, but there would be no effect on native species populations. The effects would be short-term, on a small scale, and no species of special concern would be affected.

Minor - The alternative would affect some individual native plants and would also affect a relatively minor portion of that species' population. Mitigation to offset adverse effects, including special measures to avoid affecting species of special concern, could be required and would be effective.

Moderate - The alternative would affect some individual native plants and would also affect a sizeable segment of the species' population in the long-term and over a relatively large area. Mitigation to offset adverse effects could be extensive, but would likely be successful. Some species of special concern could also be affected.

Major - The alternative would have a considerable long-term effect on native plant populations, including species of special concern, and affect a relatively large area in and out of the monument. Mitigation measures to offset the adverse effects would be required, extensive, and success of the mitigation measures would not be guaranteed.

4.4.1 Vegetation

Effect of the Preferred Alternative

Direct/Indirect Impacts: The proposed site is an unimpaired, mountain peak dominated by short grasses and desert succulents such as cacti. The total area of impact is estimated at 10,500 square feet (0.24 acre). Direct impacts include trampling of the vegetation by foot traffic and the placement of the equipment. Some individuals would be impacted, but the population would not be affected.

In BIBE, the proposed action would enhance Interagency Coordination essential to protection of natural resource from IDT/UDA impacts (i.e. vegetation trampling and clearing).

Cumulative Impacts: The direct impacts described above would continue to occur in the reasonably foreseeable future and result in a long-term, minor adverse effect on the vegetation resources at the proposed site.

Conclusion: The installation is designed to be minimal and temporary. Vegetation could be reestablished at the impacted areas when the installation is removed. Enhanced communications would improve response times to reported resource damage and facilitate cooperation between resource managers and law enforcement. Improved cooperation would likely result in more efficient monitoring of areas sensitive to damage inflicted by IDT/UDA activities.

The proposed action would result in negligible, direct adverse impacts to the vegetation on the peak. The proposed action would have a long-term minor, beneficial impact on vegetation resources in BIBE by improving Interagency Coordination. This alternative is not likely to impair park vegetation resources or values.

Effect of the No Action Alternative

Direct/Indirect Impacts: This alternative would have no direct adverse effects to the vegetation on Rosillo Peak.

Cumulative Impacts: Without improvements to the communications capability of law enforcement agencies, illegal border activities that result in trampling and clearing of vegetation resources of BIBE would continue on their upward trend in the reasonably foreseeable future. In addition, if the proposed action is not implemented, a new location for the repeater would likely be evaluated. If the proposed repeater were placed on another peak in BIBE or the surrounding area, the affect on vegetation would be similar to the impacts of the preferred alternative.

Conclusion: The no action alternative would maintain current communications limitations in the northern portion of the park.

No direct adverse impacts would occur to the vegetation on Rosillo Peak. In BIBE, the no action alternative would not improve Interagency Coordination essential to protection of natural resource from IDT/UDA impacts. The no action alternative would have a long-term minor, adverse impact on vegetation resources in BIBE. This alternative would not likely lead to impairment of park resources and values.

4.4.2 Wildlife

For the purposes of this analysis, intensity of impact, or threshold of change, to wildlife resources were defined as follows:

Negligible - Wildlife and wildlife habitat would not be affected or the effects would be at or below the level of detection and the changes would be so slight that they would not be of any measurable or perceptible consequence to the wildlife species' population.

Minor - Effects to wildlife and wildlife habitat would be detectable, although the effects would be localized, and would be small and of little consequence to the species' population. Mitigation measures, if needed to offset adverse effects, would be simple and successful.

Moderate - Effects to wildlife and wildlife habitat would be readily detectable, long-term and localized, with consequences at the population level. Mitigation measures, if needed to offset adverse effects, would be extensive and likely successful.

Major - Effects to wildlife and wildlife habitat would be obvious, long-term, and would have substantial consequences to wildlife populations in the region. Extensive mitigation measures would be needed to offset any adverse effects and their success would not be guaranteed.

Effect of the Preferred Alternative

Direct/Indirect Impacts: The area to be impacted is relatively small compared to the remaining area of the peak and similar surrounding available habitat. Helicopter visits would temporarily displace wildlife on the peak. The proposed installation would result in negligible habitat modifications on Rosillo Peak.

IDT/UDA impacts have been on an upward trend in BIBE. The proposed alternative would enhance Interagency Coordination, which would result in increased protection of the wildlife and habitat resources of BIBE.

Cumulative Impacts: The proposed installation is not expected to expand in the reasonably foreseeable future. The result of quarterly maintenance trips would result in temporary disturbances to wildlife on Rosillo Peak. The beneficial effects of the proposed action, as a result of improved law enforcement and resource management communications, on soils, vegetation, wilderness and wildlife have a cumulative beneficial effect on wildlife habitats in BIBE.

Conclusion: The proposed action would have a negligible adverse impact on foraging and shelter areas for most wildlife. Enhanced communications would improve response times to reported resource damage and facilitate cooperation between resource managers and law enforcement. Improved cooperation would likely result in more efficient monitoring of areas sensitive to damage inflicted by IDT/UDA activities.

The adverse effect of the proposed action on wildlife resources at the peak would be negligible during the implementation of the action and the subsequent maintenance activities. The improvement in law enforcement activities would have a moderate, long-term beneficial effect on wildlife habitat resources of BIBE. This alternative would likely not impair park resources or values.

Effect of the No Action Alternative

Direct/Indirect Impacts: There are no direct impacts to wildlife resources with the no action alternative. IDT/UDA impacts (i.e. habitat modifications from vegetation trampling and polluting of water sources) would continue on their upward trend.

Cumulative Impacts: The indirect impacts from IDT/UDA activities would continue to increase in the reasonably foreseeable future. In addition, if the proposed action is not implemented, a new location for the repeater would likely be evaluated. If the proposed repeater were placed on

another peak in BIBE or the surrounding area, the affect on wildlife would be similar to the impacts of the preferred alternative.

Conclusion: *No direct, adverse impacts to wildlife would occur with the no action alternative. The long-term, indirect effects of this alternative would result in habitat damage that would have a minor, adverse effect on habitat and wildlife resources in BIBE. This alternative would not likely result in impairment of park resources and values.*

4.4.3 Threatened and Endangered Species

For the purposes of this analysis, intensity of impact, or threshold of change, to threatened and endangered species resources were defined as follows:

Negligible - No listed species of concern is present; no impacts or impacts with only temporary effects are expected.

Minor – Listed species of concern may be present but only in low numbers. Habitat is not critical for survival; other habitat is available nearby. Occasional flight responses by animals are expected, but without interference with feeding, reproduction or other activities necessary for survival.

Moderate - Breeding listed species are present; listed species are present during particularly vulnerable life-stages such as migration or juvenile stages; mortality or interference with activities necessary for survival expected on an occasional basis, but not expected to threaten the continued existence of the listed species in the park.

Major - Breeding listed species are present in relatively high numbers, and/or listed species are present during particularly vulnerable life stages. Targeted habitat has a history of use by listed species during critical periods and is somewhat limited. Mortality or other effects are expected on a regular basis and could threaten continued survival of the species in the park. A taking under §7 of the Endangered Species Act could occur.

Effect of the Preferred Alternative

Direct/Indirect Impacts: A list of threatened and endangered species that may occur in Brewster County, Texas, is included as Table 3.1. The federally listed and state listed threatened and endangered species that may potentially occur in the project area include the Davis' green pitaya (*Echinocereus viridiflorus* var. *davisii*), Mexican long-nosed bat (*Leptonycteris nivalis*) and northern aplomado falcon (*Falco femoralis septentrionalis*), American peregrine falcon (*Falco peregrinus*), zone-tailed hawk (*Buteo albonotatus*), greater long-nosed bat (*Leptonycteris nivalis*), spotted bat (*Euderma maculatum*), reticulated gecko (*Coleonyx reticulatus*), Texas horned lizard (*Phrynosoma cornutum*), and the Texas lyre snake (*Trimorphodon biscutatus*).

Habitat parameters observed, such as vegetation community, soils, elevation and habitat features such as caves or crevices, were not suitable for listed threatened or endangered wildlife species with the exception of the Texas Horned Lizard. Suitable habitat for the Texas horned lizard was observed on the peak including vegetation dominated by short grasses and succulents, variable vegetation density, and gravelly, sandy soils for digging burrows. In addition, several red harvester ant (*Pogonomyrmex* sp.) mounds, the primary food for the Texas horned lizard, were observed. (Henke and Fair, 1998)

The relatively small area of impact and the infrequency of helicopter use would have a negligible impact on the use of the area by the Texas horned lizard, if it were present. The TPWD did not recommend a site-specific survey of the proposed site.

Also, the proposed site may be within the foraging range of the greater long-nosed bat, spotted bat, American peregrine falcon, the northern aplomado falcon, and the zone-tailed hawk, all listed threatened or endangered species. However, due to the large foraging ranges of these species and the relatively small area impacted by the proposed action, the proposed action would have a negligible effect on the use of the area by these species, if present.

A field survey of the proposed site was conducted on November 21, 2003. No threatened or endangered species were observed. The BIBE botanist conducted a survey of the peak, within a 100-meter radius of the proposed site, on January 28, 2002 (Sirotnek, unpublished 2001). The BIBE botanist did not observe any threatened, endangered or candidate species on the peak.

IDT/UDA impacts have been on an upward trend in BIBE. The proposed alternative would enhance Interagency Coordination, which would result in increased protection of the wildlife and habitat resources of BIBE. Enhanced communications could improve response times to reported resource damage and facilitate cooperation between resource managers and law enforcement. Improved cooperation would likely result in more efficient monitoring of areas sensitive to damage inflicted by illegal activities.

Cumulative Impacts: The habitat at the proposed site has not been modified in the past. The proposed installation is not expected to expand in the reasonably foreseeable future. No cumulative impacts would affect threatened and endangered species on Rosillo Peak. IDT/UDA impacts would continue to increase in the reasonably foreseeable future.

Conclusion: The proposed impacted areas were surveyed for federal and state listed threatened and endangered species by qualified biologists. Although the surveys were not conducted during the normal blooming period for plant species, these protected species are not expected to be present because the elevation, soils and geology of the proposed site are not generally associated with these species. Enhanced communications would improve response times to reported resource damage and facilitate cooperation between resource managers and law enforcement. Improved cooperation would likely result in more efficient monitoring of areas sensitive to damage inflicted by IDT/UDA activities.

The proposed action would have a negligible adverse impact on threatened and endangered species, if present. Due to enhanced law enforcement capabilities to deter IDT/UDA impacts, this alternative would have a long-term, moderate, beneficial effect on the threatened and endangered species of BIBE. This alternative is not likely to impair threatened and endangered species resources and values of BIBE.

Effect of the No Action Alternative

Direct/Indirect Impacts: There are no direct impacts to threatened and endangered species resources with the no action alternative. IDT/UDA impacts to park resources would continue.

Cumulative Impacts: IDT/UDA impacts would continue to increase. No direct cumulative effect to the resources of Rosillo Peak would occur with this alternative. In addition, if the proposed action were not implemented, a new location for the repeater would likely be evaluated. If the proposed repeater were placed on another peak in BIBE or the surrounding area, the affect on threatened and endangered species would be similar to the impacts of the preferred alternative.

Conclusion: ***No direct impacts to threatened and endangered species would occur with the no action alternative. With the upward trend of IDT/UDA impacts on the BIBE border, the cumulative effects could result in a long-term, moderate, adverse effect on the wildlife resources of BIBE. This alternative would not likely impair park resources and values.***

4.5 Economic and Social Resources

4.5.1 Health and Safety

For the purposes of this analysis, intensity of impact, or threshold of change, to health and safety resources were defined as follows:

Negligible - The impact to visitor and employee health and safety would not be measurable or perceptible.

Minor - The impact to visitor and employee health and safety would be measurable or perceptible, but it would be limited to a relatively small number of visitors and employees at localized areas.

Moderate - The impact to visitor and employee health and safety would be sufficient to cause a change in the outcome of an incident in an area that currently does not have radio coverage.

Major - The impact to visitor safety would be substantial. The impact to visitor and employee health and safety would be sufficient to cause a change in the outcome of an incident in any area of the park.

Effect of the Preferred Alternative

Direct/Indirect Impacts: The improvement of communications would improve NPS response time and enhance the safety of visitors and employees on Rosillo Peak and in the northern portion of the park.

Cumulative Impacts: No cumulative impacts to health and safety are anticipated with this alternative.

Conclusion: ***The proposed repeater would improve the NPS response times; therefore, it would have a minor beneficial effect on Rosillo Peak and a moderate, beneficial effect on the health and safety of visitors and employees in the northern portion of BIBE. This alternative would not likely impair park resources and values.***

Effect of the No Action Alternative

Direct/Indirect Impacts: Communications would continue to be inhibited in the northern portion of the park. The response of law enforcement and the NPS to emergency situations would continue to be limited to the current communications capabilities.

Cumulative Impacts: There are no cumulative impacts to the health and safety of visitors and employees from the no action alternative. In addition, if the proposed action were not implemented, a new location for the repeater would likely be evaluated. If the proposed repeater were placed on another peak in BIBE or the surrounding area, the affect on health and safety would be similar to the impacts of the preferred alternative.

Conclusion: NPS operations, including response times, would be maintained at their current capability. The no action alternative would have neither a beneficial effect nor an adverse effect on current NPS response times.

This alternative would maintain current response capabilities and, therefore, would have no adverse effect on the health and safety of visitors and employees in BIBE. This alternative would not likely impair the resources and values of BIBE.

4.5.2 Recreational Opportunities and Experience

For the purposes of this analysis, intensity of impact, or threshold of change, to recreational opportunities and experience were defined as follows:

Negligible - Visitors would not be affected or changes in visitor use and/or experience would be below or at the level of detection. The visitor would not likely be aware of the effects associated with the alternative.

Minor - Changes in visitor use and/or experience would be detectable, although the changes would be slight. The visitor would be aware of the effects associated with the alternative, but the effects would be slight.

Moderate - Changes in visitor use and/or experience would be readily apparent and likely long-term. The visitor would be aware of the effects associated with the alternative and would likely be able to express an opinion about the changes.

Major - Changes in visitor use and/or experience would be readily apparent and have important long-term consequences. The visitor would be aware of the effects associated with the alternative and would likely express a strong opinion about the changes.

Effect of the Preferred Alternative

Direct/Indirect Impacts: Recreational opportunities on Rosillo Peak include hiking and camping. However, there are no maintained trails to the peak or maintained campsites at the peak. The hike to the peak is very strenuous and is recommended only for very experienced hikers. The installation occupies a small area relative to the remaining suitable camping areas on the peak. No fences or other obstructions would be installed and no areas on the peak would have restricted access. The public would continue to have unrestricted recreational opportunities at the peak.

The hike to Rosillo Peak is described in Hiking Texas as having "views that stretch for miles, from the Big Bend country of Texas far into Mexico." In addition, Hiking Texas states, "few signs of man are visible." The peak itself is described as "quite grassy, with even a few hardy junipers here and there." Many people seek this type of mountain peak because of the lack of development and because of the expansive views. The proposed installation would be a man-made intrusion on a pristine mountain peak. The recreational experience of the peak would be impacted.

Enhanced communications could improve response times to reported resource damage and facilitate cooperation between resource managers and law enforcement. Improved cooperation would likely result in more efficient monitoring of areas sensitive to damage inflicted by illegal activities. Overall, resource management facilitated by the proposed installation in the northern portion of the park would enhance the recreational experience of visitors in BIBE.

Cumulative Impacts: The proposed site has been historically undeveloped. The proposed site is not expected to expand in the reasonably foreseeable future. No cumulative impacts would occur. In addition, the installation could be removed after the five-year evaluation.

The proposed site has been historically undeveloped. The proposed site is not expected to expand in the reasonably foreseeable future. The peak would remain open to the public. No cumulative impacts to recreational opportunities would occur in BIBE.

Conclusion: Although the proposed installation intrudes on the natural conditions of the peak, it is minimal in nature, designed to be temporary, and impacts only 0.24 acres. The value of a

recreational experience of a mountain top location is subjective and is based on an individual's values, which have no standard and are not readily quantifiable. While one individual may view the proposed installation as a major adverse effect, another individual may view the installation as a minor adverse effect.

The presence of the proposed installation on Rosillo Peak would have a long-term, moderate, adverse effect on the recreational experience of the peak. Improved cooperation between resource managers and law enforcement would likely result in more efficient monitoring of areas sensitive to damage inflicted by IDT/UDA activities, which would result in an indirect, minor beneficial effect for the recreational experience of BIBE. This alternative is not likely to impair park resources and values.

Effect of the No Action Alternative

Direct/Indirect Impacts: The no action alternative would maintain the undeveloped nature of the peak. No direct or indirect impacts to the recreational experience of the mountain top site would occur.

Cumulative Impacts: No cumulative impacts to the recreational experience of the peak would occur. The pristine nature of the peak would be maintained. However, IDT/UDA impacts in BIBE would continue to occur and would likely degrade other areas in BIBE that provide recreational experience. Continued, cumulative IDT/UDA activities would result in long-term, minor, adverse effect.

In addition, if the proposed action were not implemented, a new location for the repeater would likely be evaluated. If the proposed repeater were placed on another peak in BIBE or the surrounding area, the affect on recreational experience would be similar to the impacts of the preferred alternative.

Conclusion: ***The no action alternative would have no direct or indirect adverse impacts to the recreational experience of the proposed site. There would be no cumulative impacts to the pristine nature of the peak. However, minor adverse effects would occur to the recreational experience in BIBE. This alternative would likely not impair park resources and values.***